

**WHAT IS CLAIMED IS:**

1. A computer-based method for extracting multi-dimensional data from a spreadsheet, the method comprising:

providing a multi-dimensional data storage having a cube data definition language;

providing the spreadsheet in a spreadsheet application having a language for spreadsheet expressions, the spreadsheet expressions describing calculation relationships among data entities in the spreadsheet application, the spreadsheet containing a plurality of spreadsheet expressions;

parsing the plurality of spreadsheet expressions;

transforming the set of spreadsheet expressions into a set of cube expressions for defining a set of cube entities, the cube entities including dimensions, the cube expressions conforming to the cube data definition language, such that each spreadsheet expression corresponds to a cube expression and the calculation relationships among data entities in the spreadsheet application are transformed into corresponding calculation relationships among the cube entities; and

causing the set of spreadsheet expressions to create the corresponding calculation relationships within the multi-dimensional data storage.

2. The method of claim 1,

wherein the parsing step includes:

parsing the plurality of spreadsheet calculation expressions into a set of spreadsheet fact expressions and a set of spreadsheet derivative expressions;

wherein the transforming step includes:

transforming the set of spreadsheet fact expressions into a set of cube fact expressions defining a set of cube fact entities, the cube fact expressions being expressions within the cube data definition language, such that each spreadsheet fact expression corresponds to a cube fact expression; and

transforming the set of spreadsheet derivative expressions into a set of cube derivative expressions defining a set of cube derivative entities, the cube derivative expressions being expressions within the cube data definition language;

and wherein the submitting step includes:

submitting the set of spreadsheet fact expressions to the multi-dimensional data storage to create the set of cube fact entities; and

submitting the set of spreadsheet derivative expressions to the multi-dimensional data storage to create the set of cube derivative entities.

5

3. The method of claim 2, wherein the method further comprises the steps of:

moving data from the spreadsheet fact expressions into the corresponding cube fact entities, using the correspondence defined during the step of transforming the set of spreadsheet fact expressions.

10

4. The method of claim 1,

wherein the multi-dimensional data storage includes a set of cube fact entities;

wherein the parsing includes:

parsing the plurality of spreadsheet calculation expressions into a set of spreadsheet fact expressions and a set of spreadsheet derivative expressions, the set of spreadsheet derivative expressions possibly being empty;

15

wherein the transforming includes:

transforming the set of spreadsheet derivative expressions into a set of cube derivative expressions defining a set of cube derivative entities, the cube derivative expressions being expressions within the cube data definition language;

20

and wherein the submitting includes:

submitting the set of spreadsheet derivative expressions to the multi-dimensional data storage to create the set of cube derivative entities.

- 25 5. The method of claim 4, wherein the method further comprises the step of:

moving data from the spreadsheet fact expressions into the corresponding cube fact entities, using the correspondence defined during the step of transforming the set of spreadsheet fact expressions.

- 30 6. The method of claim 1, wherein the transforming includes:

consolidating the set of cube expressions into a consolidated set of cube expressions having equivalent collective scope, equivalent calculation behavior, and fewer

expressions than contained in the set of cube expressions before consolidation.

7. The method of claim 1, wherein an interactive dialog wizard provides at least part of the user's interaction with the method.

5

8. The method of claim 1, wherein the method is implemented as an add-in to a spreadsheet application.

9. A computer apparatus for extracting multi-dimensional data from a spreadsheet, the apparatus comprising:

10

a central processing unit, random-access memory, a storage device, and devices for user input and output interconnected by a bus, together with computer-readable instructions capable of causing the processing unit to perform the steps of:

providing a multi-dimensional data storage having a cube data definition language;

15

providing the spreadsheet in a spreadsheet application having a language for spreadsheet expressions, the spreadsheet expressions describing calculation relationships among data entities in the spreadsheet application, the spreadsheet containing a plurality of spreadsheet expressions;

parsing the plurality of spreadsheet expressions;

20

transforming the set of spreadsheet expressions into a set of cube expressions for defining a set of cube entities, the cube entities including dimensions, levels, and members, the cube expressions conforming to the cube data definition language, such that each spreadsheet expression corresponds to a cube expression and the calculation relationships among data entities in the spreadsheet application are transformed into corresponding calculation relationships among the cube entities;

25

causing the set of spreadsheet expressions to create the corresponding calculation relationships within the multi-dimensional data storage; and

moving fact data from the spreadsheet expressions into the corresponding cube entities, using the correspondence defined during the step of transforming the set of spreadsheet expressions.

30